REMARKS/ARGUMENTS

1.) Claim Amendments

Claims 1, 3, 5-15, 17, 19-23, 25-27, and 31-41 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

2.) Claim Rejections – 35 U.S.C. § 103(a)

On page 2 of the Office Action, the Examiner rejected claims 1, 3, 6, 17, 23, 25, and 26 under 35 U.S.C. § 103(a) as being unpatentable over Olsen et al. (US 6,094,200) in view of Wood et al. (US 6,204,856). The Applicants have amended the claims to clarify the differences between the claimed invention and the combination of Olsen and Wood.

In the Examiner's "Response to Arguments" (page 22), the Examiner repeatedly stated the rule that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. The Applicants understand this, but note the following from MPEP 2143.03 regarding the requirements for a prima facie case of obviousness:

> To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

From the Applicants' perspective, to overcome an obviousness rejection, it must be shown that at least one claim limitation is not taught or suggested by the combination of references. The only way this can be done is to first show that the claim limitation is not shown by each reference individually, thus showing that the combination of references does not teach or suggest the limitation.

By necessity, therefore, the following analysis of the cited references discusses each reference individually to identify the claim limitations that are not taught or suggested. The understanding, of course, is that claim limitations that are not taught or

suggested by *any* of the references are not taught or suggested by the combination thereof.

The Applicants contend that amended claim 1 includes limitations that are not taught or suggested by Olsen or Wood, and thus the combination of Olsen and Wood does not establish a prima facie case of obviousness.

Olsen (US 6,094,200):

Olsen describes a system for doing occlusion culling in a completely different way compared to the claimed invention. Although Olsen uses some common terminology, for instance it contains a flag for non-occlusion, the flag is not used in the same way.

Traditional rendering just renders an object (such as a car engine) primitive-by-primitive (e.g., triangle-by-triangle), and each triangle rendering is done pixel-by-pixel. For each pixel, a z-test is done to see if that pixel is visible and should be drawn. It may turn out that the entire object (such as the car engine) is hidden (by the car hood), but still every pixel of every triangle must be tested.

Olsen introduces a "testing stage" before actually rendering the object. Olsen creates a bounding box (a square cube) that is larger than the object in every direction. Just as the car engine itself, the bounding box is made up of primitives (triangles). While the car engine may be made up of thousands of triangles, the bounding box is made up of only 12 triangles (two for each of the six sides of the cube). In the testing stage, Olsen first clears his non-occlusion flag and then draws the bounding box. The triangles of the bounding box are tested for visibility pixel-by-pixel (just as the triangles of the car engine would be). If a pixel is visible, Olsen just sets the flag instead of actually painting the pixel.

If the flag is still not set when the entire bounding box has been drawn, it means that the entire bounding box must be hidden (not visible). For instance, the car hood could be in the way. Thus it is safe not to draw the object (car engine), since it cannot be visible either. It is now possible to go to the next object directly, and instead of having drawn thousands of triangles, only 12 have been drawn (the triangles of the bounding box itself).

However, if the non-occlusion flag was set, this means that the bounding box was visible, which means that the object could be visible. Thus in this case, Olsen has to draw the object anyway. In this case, Olsen has slightly increased the number of triangles drawn, from (perhaps) one thousand (the engine) to one thousand plus twelve (the engine plus the box). On average however, Olsen hopes that the number of actually drawn triangles goes down.

Note that Olsen introduces new primitives (the bounding box triangles) that were not part of the original scene. The Applicants' claimed invention does not do this. Instead, the invention processes only the original primitives themselves (the triangles of the car engine, in this example).

Olsen also needs to group primitives together to create a bounding box. (Fig 4, 42 and 43). This is a process that has to be performed by an application above the standard API level and thus Olsen cannot be implemented transparently in a standard graphics API such as OpenGL. The claimed invention, on the other hand, does not need to do any grouping of primitives, and thus, unlike Olsen, the invention works well with such standard APIs.

Note that even when Olsen's test is successful in discovering that an entire object (such as the car engine) is hidden, he has already been forced to draw a bounding box that covers as many (or more) pixels than the object. For example, if the engine occupies 100x100 pixels on the screen, the bounding box may occupy 105x105 pixels. Olsen hopes to avoid drawing the thousands of triangles of the engine, which would otherwise have resulted in accessing the depth values of the 100x100 pixels over and over again. However, Olsen still has to access the 105x105 Z-values of the bounding box region at least once. Thus even in the best case, Olsen must read all Z-values in the affected region at least once. In contrast, the Applicant's claimed invention may not have to read a single Z-value, since the invention compares against Z-min and Z-max values instead of the pixel depth values.

In summary, the claimed invention differs from Olsen in the following respects:

1. Olsen introduces new primitives (triangles), namely the bounding box primitives, and the claimed invention does not.

2. Olsen needs to know when to insert these primitives (where to do the grouping), and the claimed invention does not.

3. Olsen still has to read all the Z-values of the affected region, even if the culling is successful, and the claimed invention does not.

4. The claimed invention is tile-based, and Olsen is not.

5. The claimed invention is based on comparisons against Z-min and Z-max values, and Olsen is not.

Wood (US 6,204,856):

The Examiner cited Wood for teaching (1) a defined plurality of blocks of tiles comprising rows of pixels in which each tile includes pixels from at least two rows of pixels, and (2) processing pixels contained in the rows of tiles using a zig-zag traversal algorithm.

Wood deals with how different attributes, such as color, can be interpolated across the surface of a primitive (triangle) during rendering. However, Wood uses the tiles quite differently from the claimed invention. The tiles are not used for z-culling, but for other rendering purposes. Additionally, the zig-zag traversion that is mentioned in Wood describes how to go from one *tile* to the next, not how to go from one *pixel* to the next.

Claim 1 has been amended due to Larsen, as discussed below, but even without these amendments, there are claim limitations not taught or suggested by Olsen or Wood. Amended claim 1 recites:

> 1. A graphics processing method, comprising:
> defining a plurality of rows of tiles in a graphics display field comprising a plurality of rows of pixels, each tile including pixels from at least two rows of pixels;
> setting occlusion flags for respective tiles of a row of tiles for a graphics primitive based on whether respective representative depth values for the tiles of the row of tiles meet an occlusion criterion;
> processing pixels in rows of pixels corresponding to the row of tiles for the graphics primitive in a row-by-row manner responsive to the occlusion flags, wherein the step of processing pixels includes:

processing a portion of the pixels in a first tile of the row of tiles responsive to the occlusion flags; and

depending on the geometry of the primitive, processing pixels in a second tile of the row of tiles responsive to the occlusion flags before processing additional pixels in the first tile responsive to the occlusion flags;

wherein the occlusion flags are stored in a tile occlusion information cache that is configured to store respective occlusion flags for respective tiles of a row of tiles and respective occlusion threshold depth values for the respective tiles of the row of tiles, and wherein the step of setting occlusion flags includes:

determining a maximum depth value for the graphics primitive within a tile;

comparing the maximum depth value to the cached occlusion threshold depth value for the tile in the tile occlusion information cache; and

setting the occlusion flag for the tile responsive to the comparison.

Olsen is not tile-based, and thus does not define a plurality of rows of tiles, does not set occlusion flags for respective tiles of a row of tiles, and does not process pixels responsive to the occlusion flags for the tiles. Wood discloses the use of tiles, but does not process pixels in rows of pixels corresponding to the row of tiles for the graphics primitive in a row-by-row manner responsive to occlusion flags for the tiles.

Thus, at least the third element of claim 1 is not shown or suggested by either Olsen or Wood, and thus is not shown or suggested by the combination thereof. Therefore, the withdrawal of the rejection under § 103 and the allowance of claim 1 are respectfully requested.

Claims 3 and 6 depend from amended claim 1 and recite further limitations in combination with the novel elements of claim 1. Therefore, the allowance of claims 3 and 6 is respectfully requested.

Claim 17 is an apparatus claim depending from independent claim 15. Claim 15 has been amended to recite a graphics processor configured to perform the method of claim 1. Therefore, the allowance of claim 17 is respectfully requested.

Claim 23 is an independent claim reciting a computer program product. Claim 23 has been amended to recite a computer program product comprising program code embodied in a computer-readable medium, the program code comprising program code

configured to perform the method of claim 1. Therefore, the allowance of amended claim 23 is respectfully requested.

Claim 26 is an independent claim reciting a computer program product. Claim 26 has been amended to recite a computer program product comprising program code embodied in a computer-readable medium, the program code comprising program code configured to perform the method of claim 41.

New claim 41 replaces claim 29 and recites:

> 41. A graphics processing method, comprising:
> dividing a graphics display field into a plurality of tiles, each tile comprising a plurality of pixels;
> determining a maximum depth value for a graphic primitive within a given tile;
> determining a minimum depth value for pixels in said given tile;
> determining whether the minimum depth value for the given tile exceeds the maximum depth value for the graphic primitive;
> setting an occlusion flag for the given tile to indicate that the graphics primitive is not occluded in the given tile upon determining that the minimum depth value for the given tile exceeds the maximum depth value for the graphics primitive; and
> processing a pixel within the given tile for the graphics primitive responsive to the setting of the occlusion flag.

Olsen and Wood fail to teach or suggest at least the steps of determining a maximum depth value for a graphic primitive within a given tile, and determining whether the minimum depth value for the given tile exceeds the maximum depth value for the graphic primitive. It follows that the steps of setting the occlusion flag are also performed differently from what is disclosed in Olsen and Wood. Thus, new claim 41 is allowable over Olsen and Wood. Therefore, the allowance of new claim 41 is respectfully requested.

On page 5 of the Office Action, the Examiner rejected claims 2, 4, 5, 7-16, 18, 20-22, 24, 27-29, 32-34, and 36-40 under 35 U.S.C. § 103(a) as being unpatentable over Olsen in view of Wood and further in view of Larsen (US 6,313,839). Of these claims, the Applicants have canceled claims 2, 4, 16, 18, 24, and 28-29. The Applicants

have amended the remaining claims to clarify the differences between the claimed invention and the combination of Olsen, Wood, and Larsen.

Larson (US 6,313,839):

Larson uses a tiled structure. For each tile, the minimum Z-value (Z MIN) and the maximum Z-value (Z MAX) are calculated and stored in memory. Larson then rasterizes the triangle by visiting (traversing) all the pixels that the triangle covers. For each pixel, the depth of the pixel "REC Z VAL" is calculated. In a normal system, one would then load the Z-value stored in the Z-buffer ("OLD Z VAL") and compare it to REC Z VAL. If REC Z VAL is smaller, the pixel is written.

However, instead of comparing REC Z VAL to OLD Z VAL, Larson compares REC Z VAL to Z MAX for each pixel. If REC Z VAL is larger, this pixel can be discarded without having to read OLD Z VAL from the depth buffer. This results in fewer memory accesses (namely those where OLD Z VAL does not need to be fetched) and thus increases performance.

If REC Z VAL is not larger, the pixel is compared to Z MIN. If REC Z VAL is smaller than Z MIN, the pixel can be written to the frame buffer without reading OLD Z VAL. Again, this saves memory accesses and increases performance.

Note that even though Larson saves memory accesses by not reading OLD Z VAL, Larson introduces new memory accesses since Z MAX and Z MIN must be loaded. Therefore, Larson has disclosed two different embodiments.

In the first embodiment, Larson minimizes the number of Z MAX and Z MIN memory accesses by enforcing that all the pixels in one region must be processed before going to the next region. Note that this is in stark contrast to amended claim 1, which explicitly recites that another region is processed before being finished with the first. This embodiment is therefore clearly different from amended claim 1.

In the second embodiment, which is described in Fig. 4 and which is also the preferred embodiment, a cache is used. Z MAX and Z MIN are stored in the cache, but Z-values for individual pixels (OLD Z VAL) are also cached. In this embodiment, it is not necessary to visit all the pixels of a region before going to the next region. However, the cache in this embodiment is very different from the claimed invention. Larson

states, "Preferably, the cache memory element has a sufficient number of locations for storing the Z values for a plurality of regions and their associated Z MAX and Z MIN." (Col. 5, lines 38-40).

In the claimed invention, the image (triangle) is also divided into regions (tiles) as disclosed in Larson. Each tile could be, for example, a 4x4 or 8x8 pixel block. For each such block, the minimum value (Z-min) is calculated, and stored in memory.

The triangle is then rasterized by visiting (traversing) all the pixels that the triangle covers. The triangle is traversed in a zig-zag pixel pattern, which means that one line is traversed left-to-right, and then the process moves one pixel up, and moves right-to-left, up, and continues. In a normal system, one would calculate the depth of the pixel "z-tri(x,y)" (see 401 in Fig. 5). One would then load the Z-value stored in the Z-buffer ("OLD Z VAL") and compare it to z-tri(x,y). If z-tri(x,y) is smaller, the pixel is written.

However, instead of calculating z-tri(x,y) that is valid for just one pixel, the claimed invention calculates Z-tri-max (see 303 in Fig. 4). This is a value that is larger than the value that any pixel belonging to that triangle and region could have. This value is then compared to Z-min. If Z-tri-max < Z-min, then all pixels belonging to the triangle in this region must be visible, and "OLD Z VAL" does not need to be loaded. In this way, the invention saves memory accesses, and the performance of the system is increased. However, if Z-tri-max => Z-min, nothing can be inferred about the region. The invention must then fall back to calculating z-tri(x,y) for each pixel and compare it to OLD Z VAL for each pixel, just as in a normal system.

Similar to Larson, the claimed invention avoids memory accesses (in the form of OLD Z VAL-reads), but the invention also introduces new memory accesses in the form of Z-min values, that have to be read and updated. In order to gain from this, a caching system is utilized. In the claimed invention, unlike Larsen, the cache is very small. The cache system is built for ZIGZAG traversal. Each region that is cached contains only a Z-min value, a valid-bit, and an occlusion bit. This is very small. For instance, if the Z-min is 16 bits, the invention only has 18 bits per region. A second advantage is that the invention only has to cache one row worth of regions. For instance, if the screen size is

320x240, the row length is 320 pixels, and we need to cache 320/8 = 40 regions (given that the region size is 8x8). This is only 40*18 = 720 bits, which is very small.

In Larson, on the other hand, if the Z values are 16-bits, the tag bits are 1-bit, and the region size is 8x8 pixels, storing just one cache block in Larson's solution will take 16*64 bits for the Z-values, 16*2 bits for Z MIN and Z MAX, and 64 bits for the tag bits. In total, this is 1120 bits per region. In the claimed invention, there are a total of only 18 bits per region. Thus the invention saves 1102 bits per region, which is an enormous savings.

Note further, that the maximum size of the cache for a 320x240 pixel image in the claimed invention is just 720 bits. Thus, the entire cache is smaller than just one cache region for Larson's solution. (More than one region would be needed to have an effective cache.) This further emphasizes the memory savings that are possible with the claimed invention compared to Larson.

Differences between the invention and Larson:

1. Larson always starts by comparing REC Z VAL to Z MAX, see claim 1, row 48: "... the controller comparing each Z value received in the controller with the maximum Z value for the corresponding region...". The claimed invention does not compare against Z MAX. Instead, it compares directly against Z MIN.

2. Larson compares the new Z-coordinate received in the frame buffer controller (Received Z value, or "REC Z VAL" in Fig. 4) with Z MAX (and possibly Z MIN), to see if that pixel should be rendered or not. Thus, at least one test must be performed per pixel (75 or 85 in Fig. 4). See claim 1, row 48: "...the controller comparing each Z value received in the controller with the maximum Z value for the corresponding region...". The claimed invention instead uses a value that is larger than or equal to all possible Z-coordinates of the primitive inside the region. This value, called Z-tri-max, is used to test against Z-min. This test is only necessary to do once per "region" instead of once per pixel. The result of the test may be stored in the cache using the occlusion bit. This means that, for a region size of 8x8 pixels, Larson needs to do 64 tests, whereas in the claimed invention, only one test must be done. This is a substantial savings in terms of computation.

3. Larson always stores both Z MIN and Z MAX of each region, and the claimed invention does not. Larson clearly states in claim 1, row 43: "... the memory device storing maximum and minimum Z values for regions of primitives, the maximum Z value corresponding to a largest Z value of a region of Z values, the minimum Z value corresponding to a smallest Z value of all the Z values in the region...".

Claim 1 has been amended to incorporate the limitations of dependent claims 2 and 4, which have been canceled. As noted above, the combination of Olsen and Wood fails to teach or suggest the step of processing pixels in rows of pixels corresponding to the row of tiles for the graphics primitive in a row-by-row manner responsive to the occlusion flags. This step has been further defined to include processing a portion of the pixels in a first tile of the row of tiles responsive to the occlusion flags; and depending on the geometry of the primitive, processing pixels in a second tile of the row of tiles responsive to the occlusion flags before processing additional pixels in the first tile responsive to the occlusion flags.

Larson also fails to teach or suggest this step. As noted above, in Larson's first embodiment, Larson minimizes the number of Z MAX and Z MIN memory accesses by enforcing that all the pixels in one region (i.e., tile) must be processed before going to the next region. Note that this is in stark contrast to amended claim 1, which explicitly recites that another region is processed before being finished with the first.

In Larson's second embodiment, Larson always stores both Z MIN and Z MAX of each region. Amended claim 1 recites that the occlusion flags are stored in a tile occlusion information cache that is configured to store respective occlusion flags for respective tiles of a row of tiles and respective occlusion threshold depth values for the respective tiles of the row of tiles. Thus, the claimed invention stores only Z-min, not both Z MIN and Z MAX.

Furthermore, amended claim 1 recites that the step of setting occlusion flags includes determining a maximum depth value for the graphics primitive within a tile; comparing the maximum depth value to the cached occlusion threshold depth value for the tile in the tile occlusion information cache; and setting the occlusion flag for the tile responsive to the comparison. These steps are also different from Larson, which

compares the new Z-coordinate received in the frame buffer controller (Received Z value, or "REC Z VAL" in Fig. 4) with Z MAX *for each pixel*, to see if that pixel should be rendered or not. The claimed invention performs *one test per tile* by comparing against Z-min.

It is further noted that neither Olsen nor Wood teach or suggest these steps. Therefore, the withdrawal of the rejection and the allowance of amended claim 1 are respectfully requested.

Claims 5, 7, and 8 depend from amended claim 1 and recite further limitations in combination with the novel elements of claim 1. Therefore, the allowance of claims 5, 7, and 8 is respectfully requested.

Claim 9 has been rewritten in independent form to include the limitations of original base claim 1. Thus amended claim 9 also includes the processing step that is not taught or suggested by Olsen and Wood. Claim 9 further recites comparing a single depth value for the primitive against an occlusion threshold depth value for a pixel in the depth buffer. As noted above, Larson always stores both Z MIN and Z MAX of each region. The claimed invention stores only Z-min, not both Z MIN and Z MAX. Therefore, Larsen also fails to teach or suggest the processing step. Therefore, the allowance of amended claim 9 is respectfully requested.

Claim 10 depends from amended claim 9 and recites further limitations in combination with the novel elements of claim 9. Therefore, the allowance of claim 10 is respectfully requested.

Claim 11 has been rewritten in independent form to include the limitations of original base claim 1. Thus amended claim 11 also includes the processing step that is not taught or suggested by Olsen and Wood. Claim 11 further recites a tile occlusion information cache that is configured to store respective occlusion flags for respective tiles of a row of tiles, respective occlusion threshold depth values for the respective tiles of the row of tiles, and respective status flags for respective tiles of the row of tiles. Such a cache is also not taught or suggested by Olsen and Wood. Additionally, as discussed above with respect to Larsen, this type of cache is very different from Larsen, and is not taught or suggested by Larsen. Therefore, the allowance of amended claim 11 is respectfully requested.

Claim 12 depends from amended claim 11 and recites further limitations in combination with the novel elements of claim 11. Therefore, the allowance of claim 12 is respectfully requested.

Claim 13 has been rewritten in independent form to include the limitations of original base claim 1. Thus amended claim 13 also includes the processing step that is not taught or suggested by Olsen and Wood. Claim 13 further recites a tile occlusion information cache that is configured to store respective occlusion flags for respective tiles of a row of tiles, respective occlusion threshold depth values for the respective tiles of the row of tiles, and respective status flags for respective tiles of the row of tiles. Such a cache is also not taught or suggested by Olsen and Wood. Additionally, as discussed above with respect to Larsen, this type of cache is very different from Larsen, and is not taught or suggested by Larsen. Therefore, the allowance of amended claim 13 is respectfully requested.

Claim 14 depends from amended claim 13 and recites further limitations in combination with the novel elements of claim 13. Therefore, the allowance of claim 14 is respectfully requested.

Claim 15 has been amended to recite an apparatus that includes a graphics processor configured to perform the method of claim 1. Claim 1 is allowable for the reasons discussed above. Therefore, the allowance of claim 15 is respectfully requested.

Claim 20 has been amended to recite an apparatus that includes a graphics processor configured to perform the method of claim 41. Claim 41 is allowable for the reasons discussed above. Therefore, the allowance of claim 20 is respectfully requested.

Claims 21 and 22 depend from amended claim 20 and recite further limitations in combination with the novel elements of claim 20. Therefore, the allowance of claims 21 and 22 is respectfully requested.

Claim 27 depends from claim 26, which recites a computer program product comprising program code embodied in a computer-readable medium, the program code comprising program code configured to perform the method of claim 41. Claim 41 is

allowable for the reasons discussed above. Therefore, the allowance of claim 27 is respectfully requested.

Claims 32-34 and 36-40 have been amended to depend from claim 41. Claim 41 is allowable for the reasons discussed above. Therefore, the allowance of claims 32-34 and 36-40 is respectfully requested.

On page 19 of the Office Action, the Examiner rejected claim 19 under 35 U.S.C. § 103(a) as being unpatentable over Olsen in view of Wood and further in view of Larsen and further in view of Dye et al. (US 6,518,965). The Examiner cited Dye for disclosing a display and a graphics processor housed in a portable electronic device. However, Dye does not teach or suggest the processing steps discussed above, which are not taught or suggested by Olsen, Wood, and Larsen. Thus, the combination of Olsen, Wood, Larsen, and Dye does not establish a prima facie case of obviousness for claim 19. Therefore, the allowance of claim 19 is respectfully requested.

On page 20 of the Office Action, the Examiner rejected claims 30, 31, and 35 under 35 U.S.C. § 103(a) as being unpatentable over Olsen in view of Wood and further in view of Larsen and further in view of Duluk, Jr. et al. (US 6,476,807). Claims 30, 31, and 35 have been amended to depend from new claim 41, which is allowable for the reasons discussed above. The Applicants' reading of Duluk has not revealed any teaching or suggestion of the processing steps discussed above, which are not taught or suggested by Olsen, Wood, and Larsen. Thus, the combination of Olsen, Wood, Larsen, and Duluk does not establish a prima facie case of obviousness for claims 30, 31, and 35. Therefore, the allowance of claims 30, 31, and 35 is respectfully requested.

Furthermore, the Applicants respectfully submit that this combination of references is improper. It appears that the Examiner has combined features of Olsen, Wood, Larsen, and Duluk to arrive at the individual elements of claims 30, 31, and 35. The Applicant submits that the Examiner has simply taken unrelated phrases from the various references and combined them using Applicants' disclosure as a blueprint without any teaching or suggestion in the references themselves.

The case law forbids this type of combination by requiring that there must be evidence that a skilled artisan, confronted with the same problems as the inventor and

with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. It is also clear that a rejection cannot be predicated on the mere identification of individual components of claimed limitations. Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *Ecolochem Inc. v. Southern California Edison,* 56 USPQ2d 1065, 1076 (Fed. Cir. 2000).

The Applicants also respectfully submit that the Office action uses impermissible hindsight by simply taking bits and pieces of information from each reference and piecing them together like a jigsaw puzzle using the Applicants' disclosure as a blueprint. However, the case law makes it clear that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. *See Dembiczak,* 50 USPQ2d, 1614, 1617 (Fed. Cir. 1999). "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability - the essence of hindsight." *Id.*

CONCLUSION

In view of the foregoing remarks, the Applicant believes all of the claims currently pending in the Application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1, 3, 5-15, 17, 19-23, 25-27, and 31-41.

The Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,

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